

Appl. No. 10/666,084
Amdt. dated December 21, 2006
Reply to Office Action of September 21, 2006

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Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1. (currently amended) A method for handling failures in a data plane of a plurality of data planes, the method comprising:
 - generating a partitioned data structure, wherein the partitioned data structure is generated from a control processor including a failure detector, and the data structure includes one or more partitions for each of the plurality of data planes, each partition including routes for a source data plane to a destination data plane;
 - sending one or more partitions from the partitioned data structure to a data plane that is the source data plane in the routes;
 - detecting a failure in a failed data plane in the plurality of data planes, wherein the failure detector is configured to detect the failed data plane in the plurality of data planes; and
 - notifying data planes other than the failed data plane in the plurality of data planes that the failed data plane has failed,
 - wherein the notified data planes do not send data for the one or more routes found in a partition associated with the failed data plane.
2. (original) The method of claim 1, wherein one partition includes all routes from a source data plane and to a destination data plane.
3. (original) The method of claim 1, further comprising removing any data partitions that have been received at the data planes that have the failed data plane as the destination data plane.
4. (original) The method of claim 1, further comprising:
 - detecting when the failure has been restarted; and

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sending one or more partitions that include the failed data plane as the source data plane in the routes to the failed data plane.

5. (original) The method of claim 1, further comprising:
detecting when the failure has been restarted; and
notifying the data planes other than the failed data plane that the failure has been restarted, wherein the data planes send data for the one or more routes found in a partition associated with the failed data plane.

6. (currently amended) The method of claim 3, further comprising if any partitions were removed, restoring the removed partitions.

7. (original) The method of claim 6, further comprising sending the removed partitions to each data plane other than the failed data plane.

8. (original) The method of claim 7, wherein the sending step is performed without the control processor.

9. (original) The method of claim 1, further comprising:
storing the data structure in persistent storage; and
sending one or more partitions to the failed data plane from the persistent storage after the failed data plane is restarted.

10. (original) The method of claim 9, wherein the sending step is performed without the control processor.

11. (original) The method of claim 1, further comprising separating each partition in the partitioned data structure.

12. (currently amended) A method for handling failures in a data plane in a plurality of data planes, the method comprising:

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generating a partitioned data structure, wherein the partitioned data structure is generated from a control processor including a failure detector, and the data structure includes one or more partitions for each of the plurality of data planes, each partition including routes for a source data plane to a destination data plane;

sending one or more partitions from the partitioned data structure to a data plane that is the source data plane in the routes;

detecting when a failure in a failed data plane in the plurality of data planes has been resolved, wherein the failure detector is configured to detect the failed data plane in the plurality of data planes; and

sending the failed data plane a partition associated with the failed data plane, wherein the partition allows the failed data plane to resume sending data according to the routes found in the partition.

13. (original) The method of claim 12, further comprising notifying data planes other than the failed data plane that the failed data plane has failed, wherein the notified data planes do not send data for the one or more routes found in a partition associated with the failed data plane.

14. (original) The method of claim 12, further comprising notifying data planes other than the failed data plane that the failure has been resolved, wherein the notified data planes resume sending data for the one or more routes found in a partition associated with the failed data plane.

15. (original) The method of claim 12, wherein one partition includes all routes from a source data plane and to a destination data plane.

16. (original) The method of claim 12, further comprising removing any data partitions that have been received at the data planes that have the failed data plane as the destination data plane.

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17. (original) The method of claim 16, further comprising if any partitions were removed, restoring the removed partitions.

18. (original) The method of claim 17, further comprising sending the removed partitions to each data plane other than the failed data plane.

19. (original) The method of claim 18, wherein the sending step is performed without the control processor.

20. (original) The method of claim 12, further comprising:
storing the data structure in persistent storage; and
sending one or more partitions to the failed data plane from the persistent storage after the failed data plane is restarted.

21. (original) The method of claim 20, wherein the sending step is performed without the control processor.

22. (original) The method of claim 12, further comprising separating each partition in the partitioned data structure.

23. (canceled)

24. (canceled)

25. (currently amended) A system for handling data plane failures, the system comprising:

a plurality of data planes; and

a control processor comprising:

a receiver configured to received routes for route data, each route specifying source data plane in which data is sent and a destination data plane in which data is received;

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a failure detector configured to detect a failure in a data plane in the plurality of data planes;

a data structure generator configured to generate a data structure that groups the routes by a source data plane for each of the plurality of data planes; and

a distributor configured to distribute the grouped routes to each associated source data plane,

wherein the plurality of data planes comprise storage for storing the grouped routes that are received from the distributor.

26. (canceled)

27. (original) The system of claim 26, wherein the control processor comprises a notifier, the notifier configured to notify data plane of the failure.

28. (original) The system of claim 27, wherein the data planes are configured to not send data to a failed data plane upon the notification.

29. (original) The system of claim 27, wherein the data planes are configured to remove a partition associated with the failed data plane upon the notification.

30. (original) The system of claim 25, wherein the control processor comprises a detector configured to detect when a failure in a data plane has been restarted.

31. (original) The system of claim 30, wherein the control processor comprises a notifier configured to notify the data planes other than the failed data plane that the failure has been restarted.

32. (original) The system of claim 31, wherein the data planes other than the failed data plane are configured to start sending data to the data plane whose failure had been restarted.

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33. (original) The system of claim 31, wherein the data planes other than the failed data plane are configured to reinstate the partitions associated with the failed data plane whose failure has been restarted.

34. (original) The system of claim 31, wherein the distributor is configured to send the failed data plane whose failure has been restarted partitions that have the failed data plane as the source data plane.